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TREATIES AND OTHER INTERNATIONAL ACTS SERIES 9508

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SEED PRODUCTION AND INPUT STORAGE

Seeds 1/1 GP00/259 input 1/5/84 Rev 1/8/81 CB Ag'l productivity 1/1 1-up 7053287

Agreement Between the
UNITED STATES OF AMERICA
and NEPAL

Signed at Kathmandu August 31, 1978

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NEPAL

Seed Production and Input Storage

Agreement signed at Kathmandu August 31, 1978;
Entered into force August 31, 1978.

A.I.D. Project Number 367-0118

PROJECT GRANT AGREEMENT

BETWEEN

HIS MAJESTY'S GOVERNMENT OF NEPAL

and the

UNITED STATES OF AMERICA

for

SEED PRODUCTION AND INPUT STORAGE

Dated: August 31, 1978

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Annex 1 - Amplified Description of Project

[1] Not printed herein. The annex is deposited in the archives of the Department of State where it is available for reference.

A.I.D. Project No. 367-0118

Project Grant Agreement

Dated: August 31, 1978

Between

His Majesty's Government of Nepal (hereinafter referred to as "HMG/N")

And

The United States of America, acting through the Agency for International Development (hereinafter referred to as "A.I.D.").

Article 1: The Agreement

The purpose of this Agreement is to set out the understandings of the Parties named above with respect to the undertaking by the Parties of the Project and with respect to the financing of the Project by the Parties.

Article 2: The Project

SECTION 2.1. Definition of Project. The Project will consist of assisting HMG/N Ministry of Food, Agriculture and Irrigation to establish a labor intensive system, ultimately based on private growers, for effectively producing, testing, processing, storing and distributing seed of the major food crops particularly for the small farmers.

SECTION 2.2. Annex 1. Annex 1, attached, amplifies the above definition of the Project. Within the limits of the above definition of the Project, elements of the amplified description stated in Annex 1 may be changed by written agreement of the authorized representatives of the Parties named in Section 8.2., without formal amendment of this Agreement.

Article 3: Financing

SECTION 3.1. The Grant. To assist HMG/N to meet the costs of carrying out the Project, A.I.D., pursuant to the Foreign Assistance Act of 1961, as amended,[1] agrees to grant HMG/N under the terms of this Agreement not to exceed four million thirty one thousand United States ("U.S.") Dollars ($4,031,000) ("Grant"). The Grant may be used to finance foreign exchange costs, as defined in Section 6.1., and local currency costs, as defined in Section 6.2., of goods and services required for the Project.

SECTION 3.2. HMG/N Resources for the Project

(a) HMG/N agrees to provide or cause to be provided for the Project, in addition to the Grant, the other resources required to carry out the Project effectively and in a timely manner.

(b) The total resources, including costs borne on an in-kind basis, provided by HMG/N shall not be less than 25 percent of total project costs.

SECTION 3.3. Project Assistance Completion Date

(a) The "Project Assistance Completion Date" hereinafter referred to as "PACD", which is August 31, 1983, or such other date as the Parties may agree to in writing, is the date by which the Parties expect that all services financed under the Grant will have been performed and all goods financed under the Grant will have been furnished for the Project as contemplated in this Agreement.

[1] 75 Stat. 424; 22 U.S.C. § 2151 note.

(b) Except as A.I.D. may otherwise agree in writing, A.I.D. will not issue or approve documentation which would authorize release of the Grant for services performed subsequent to the PACD or for goods furnished for the project, as contemplated in this Agreement, subsequent to the PACD.

(c) Requests for release, accompained by necessary supporting documentation prescribed in Project Implementation Letters are to be received by A.I.D. no later than nine (9) months following the PACD, or such other period as A.I.D. agrees to in writing. After such period, A.I.D., after consultation with HMG/N, may at any time or times reduce the amount of the Grant by all or any part thereof for which requests for release, accompained by necessary supporting documentation prescribed in Project Implementation Letters, were not received before the expiration of said period.

Article 4: Conditions Precedent to Release

SECTION 4.1. Release. Prior to the release under the Grant, or to the issuance by A.I.D. of documentation pursuant to which release will be made for commodities, construction, or services HMG/N will, except as the Parties may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to the Parties:

(a) Evidence that HMG/N has taken appropriate action to contract with long term advisor(s);

(b) A statement from the Ministry of Finance that this Agreement has been duly authorized and executed on behalf of HMG/N and that it

constitutes a valid obligation of HMG/N;

(c) A statement of the name of the person holding or acting in the office of HMG/N specified in Section 8.2., and of any additional representatives, together with a specimen signature of each person specified in such statement;

(d) The time schedule for the evaluation program referred to in Section 5.1.; and

(e) The set of criteria by which location of the seed houses and warehouses will be determined.

SECTION 4.2. Releases for Construction of Seed Houses and Warehouses. Prior to releases under the Grant or to issuance by A.I.D. of documentation pursuant to which releases will be made for the construction of each seed house and warehouse HMG/N will, except as the Parties may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to the Parties the costs estimate and plans for each one or more.

SECTION 4.3. Notification. When A.I.D. has determined that the conditions precedent specified in Section 4.1. and 4.2. have been met, it will promptly notify HMG/N.

SECTION 4.4. Terminal Dates for Conditions Precedent. If all of the conditions specified in Section 4.1. have not been met within 90 days from the date of this Agreement, or such later date as A.I.D. may

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agree to in writing, A.I.D., at its option, may terminate this Agreement by written notice to HMG/N.

Article 5: Project Evaluation

The Parties agree to establish an evaluation program as part of the Project.

Article 6: Procurement Source

SECTION 6.1. Foreign Exchange Costs. Releases pursuant to Section 7.1. will be used exclusively to finance the costs of goods and services required for the Project having their source and origin in the countries included in Code 941 of the A.I.D. Geographic Code Book as in effect at the time orders are placed or contracts entered into for such goods or services ("Foreign Exchange Costs"), except as provided in the Project Grant Standard Provisions Annex, Section C.1 (b) with respect to marine insurance.

SECTION 6.2. Local Currency Costs. Releases pursuant to Section 7.2. will be used exclusively to finance the costs of goods and services required for the Project having their source and, except as A.I.D. may otherwise agree in writing, their origin in Nepal.

Article 7: Release

SECTION 7.1. Release for Foreign Exchange Costs. After satisfaction of conditions precedent, HMG/N may obtain releases of funds under the Grant for the Foreign Exchange Costs of goods or services required for the Project in accordance with the terms of this Agreement, by

requesting A.I.D. to issue Letters of Commitment for specified amounts directly to one or more contractors or suppliers, committing A.I.D. to pay such contractors or suppliers for such goods or services.

SECTION 7.2. Release for Local Currency Costs

(a) After satisfaction of conditions precedent, HMG/N may obtain releases of funds under the Grant for Local Currency Costs required for the Project in accordance with the terms of this Agreement, by submitting to A.I.D., with necessary supporting documentation as prescribed in Project Implementation Letters, requests to finance such costs.

(b) The local currency needed for such releases may be obtained by acquisition by A.I.D. with US Dollars by purchase.

The U.S. dollar equivalent of the local currency made available hereunder will be, in the case of subsection (b) above, the amount of U.S. dollars required by A.I.D. to obtain the local currency.

SECTION 7.3. Other Forms of Release. Releases of the Grant may also be made through such other means as the Parties may agree to in writing.

SECTION 7.4. Rate of Exchange. Except as may be more specifically provided under Section 7.2., if funds provided under the Grant are introduced into Nepal by A.I.D. or on behalf of A.I.D. by any public or private agency for purposes of carrying out obligations of A.I.D. hereunder, HMG/N will make such arrangements as may be necessary so

that such funds may be converted into currency of Nepal at the official rate of exchange at the time the conversion is made.

Article 8: Miscellaneous

SECTION 8.1. Communications. Any notice, request, document, or other communication submitted by either Party to the other under this Agreement will be in writing or by telegram or cable, and will be deemed duly given or sent when delivered to such Party at the following addresses:

To HMG/N:

Mail and Cable Address: Joint Secretary
Planning and Coordination Division
Ministry of Food, Agriculture
and Irrigation
His Majesty's Government
Singha Durbar, Kathmandu, Nepal

To A.I.D.:

Mail and Cable Address: Director
U.S. Agency for International
Development
c/o American Embassy
Kathmandu, Nepal

All such communications will be in English, unless the Parties otherwise agree in writing. Other addresses may be substituted for the above upon the giving of notice.

SECTION 8.2. Representatives. For purposes of implementing this Agreement, HMG/N will be represented by the Secretary, Ministry of Finance and A.I.D. will be represented by the Director, USAID/Nepal, each of whom by written notice, may designate additional representatives.

The names of the representatives of HMG/N, with specimen signatures, will be provided to A.I.D., which may accept as duly authorized any instrument signed by such representatives in implementation of this Agreement, until receipt of written notice of revocation of their authority.

SECTION 8.3. Standard Provisions Annex 2. A Project Grant Standard Provisions Annex 2[1] is attached to and forms part of this Agreement.

IN WITNESS WHEREOF, HMG/N and the United States of America, each acting through its duly authorized representative, have caused this Agreement to be signed in their names and delivered as of the day and year first above written.

On Behalf of His Majesty's Government of Nepal

BY: [2]
Acting Secretary
TITLE: Ministry of Finance

On Behalf of The United States of America

BY: [3]
TITLE: Director, USAID/Nepal

[1] See footnote 1, p. 3.
[2] Devendra R. Panday.
[3] Samuel H. Butterfield.

ANNEX 1

Seed Production and Input Storage

A.I.D. Project Number 367-0118

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ANNEX 1

I. Purpose and General Description of the Project

A. Purpose

The purpose of the project is to help the Ministry of Food, Agriculture and Irrigation (MFAI) establish a labor intensive system, ultimately to be based on private growers, for producing, testing, processing, storing and distributing seed of the major food crops and of storing and distributing all inputs used in the production of these crops, cheaply and effectively, to the small farmers.

This is to be accomplished by helping the MFAI and the Agricultural Inputs Corporation (AIC) establish a system for producing good seed and distributing inputs that is compatible with the Nepalese culture and which can be conducted under the physical and economic conditions that exist in the country.

B. General Description

This project will start in late 1978 and will continue for 5 years. It will expand the seed industry in Nepal with private farmers producing cereal seed, except breeders' seed and some foundation seed: with farm organizations and cooperatives (Sajhas) selling most of the seed at the retail level; with the Agricultural Inputs Corporation (AIC) encouraging production and processing and distributing much of the seed produced until a distribution system can be organized. It is charged with distributing fertilizers and other inputs also. It would have the duty of balancing supply and demand in all parts of the country so that any variety of seed and

an adequate supply of fertilizer would be available to all farmers wanting it. The Botany Division of the Department of Agriculture (particularly the seed analysis section) would supervise production, enforce standards, analyze the seed and generally control all qualitative aspects of the seed industry. Two central committees will be set up - one, the crop release committee, to be chaired by the Deputy Director General Crops Research which would examine all available data to determine which crop varieties were suitable for release and seed production and the other to approve rules, regulations, procedures, labeling and certification standards, etc. committees will be set up in each region to assist in training, determine needs, set standards etc.

C. Methodology

For this project to be successful, staffing of participating HMG/N agencies must be strengthened both by bringing in new personnel and by training. It is estimated that by 1985, 47 officers and 93 JTs and JTAs will need to be added to the present staff to assist the seed producers and to supervise procurement and distribution of seed and other inputs.

Additional Staff Requirements for Seed Production

	1980		1985	
	Officers	JTs & JTAs	Officers	JTs & JTAs
Seed Division	6	9	10	17
AIC	6	20	15	31
District & Region Seed Staff	18	39	22	45
Total	30	68	47	93

In addition to the above, secretaries, drivers, clerk-typists, peons, etc. will be needed as part of the permanent staff. Short term help will also be needed to perform field inspections, storage inspections and to collect seed samples to be sent to the nearest analysis laboratory.

Following is the breakout of responsibilities within HMG/N as presently envisaged.

The Seed Division staff of the Department of Agriculture will be responsible for field inspections, seed testing, issuing tags (labels), enforcements and regulation under the guidance and supervision of the Central Seed Production Committee (CSPC).

Each of the seed testing laboratories will be authorized to issue tags or labels covering the amount of seed represented by the sample tested. These labels will include information such as variety and kind of seed, genetic purity, inert matter, weed seed,

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germination, moisture content and other information concerning the seed including the use of seed treatments, if any. These labels, or the same information, will be used to identify the contents of containers in which seed produced under this project is sold. As progress is made in reaching all seed producers with the testing service, their seed will also be labeled so that purchasers will know the quality and other characteristics of the seed offered for sale.

The AIC will arrange for contract production where and when needed; will balance demand and supply in individual markets; do long distance seed moving; make seed production tools, equipment foundation seed, supplies and spare-parts available to producers; assist with, and, where necessary, distribute seed; assist with seed drying, processing, storing (both seasonal and long term) and other seed handling and distributing activities.

The Agricultural Research Service, Crop Coordinators and Botany Section will develop, test and release new varieties and techniques; provide seed, instructions and other supplies needed for the kit program; produce foundation seed and other seed for distribution by the AIC on research stations and foundation seed farms; control variety releases and maintain constant surveillance of all crops, checking for diseases and insect attacks and helping to control them by biological, physical and chemical methods.

The Extension Service and its seed production experts will popularize the new varieties, demonstrate how to use them, issue research/production kits and report on results of the kit program, estimate seed requirements, monitor seed distribution and report any shortages or market gluts to AIC and report complaints to the CSPC and Regional Seed Production Committees (RSPC). Extension JTA's will also supervise the Seed Program in the hills, and provide technical guidance and support to farmers and to help them run the seed business on a profitable footing.

The CSPC will continue to function in a coordinating role and will establish the policies and regulations under which the seed industry operates.

RSPCs will be established in each region to plan and implement production programs, encourage and guide producers, and assist in setting standards, supervising inspections determining demand, selecting sites and performing other duties as necessary to expand the production and use of seed.

The ADB will provide credit to the Sajhas, individuals and private groups for among other things; seed production, purchase of equipment, supplies, construction and services; seed houses and warehouses; purchase of seed and other inputs; and the distribution of inputs. It will also help finance seed production and input distribution activities.

The Private Sector Seed Producers and Distributors will purchase foundation seed from the AIC and increase it. At harvest, the seed will be dried and cleaned, either at the farmer's or his cooperative's own seed house or at one of the AIC seed houses. These seed houses may do custom work for members and non members as needed. The producers will be encouraged and helped to sell their seed in their own locality but the AIC will assist in moving excess supplies to other areas or in making up shortages. The seed producers will also serve as model farmers to assist with the extension effort.

The Cooperative (Sajhas) will be responsible for most end use sales except for seed sold by private producers themselves. They will assist in the input storage program as well as in seed production and distribution wherever the membership is interested and willing to invest in these activities. Where the Sajhas are not in place, private dealers will be established.

II. Statement of Inputs and Costs

4. Overall

The resources to be made available under this project will be used for six main purposes as follows:

(1) advisors and consultants

(2) participant training

(3) construction

(4) commodities

(5) social science and physiological research

(6) in-country training

(1) Advisors and Consultants (104 person months)

It is expected that two long term advisors and up to 20 person months of short term consultants should be supplied under this project.

Advisors - long term	Person months (PM)
Seed Production and Management Specialist	- 60
Seed Processing and Business Specialist	- 24
Advisors - short term	- 20

The specialists will help train the Nepalese needed as inspectors, managers, logistics experts, researchers, contractors, operators, engineers etc. and would help the management of the seed sector in formulating rules and policies, setting standards, governing the industry and encouraging the private sector to take over the seed business eventually.

The consultants/advisors supplied under the project are expected to cost about $1,105,000 of which $941,000 would be the US share.

(a) Peace Corps:

In addition to the above, the Peace Corps is being asked to supply 6 PCVs for 2 years each to help train farmers to produce good seed. This will involve all aspects of seed production from

selection of foundation seed through to final treating, packaging, and merchandising. They will cost about $80,000.

(2) Participant Training

While a large amount of in-country training will be conducted in Nepal, it will still be necessary to send at least 37 people out of the country for training. On their return, these people will be used to train farm leaders and seed producers and to conduct the seed program for the AIC and the Department of Agriculture.

Following is the proposed training schedule. It must be adhered to very closely in order to insure that all trainees return to Nepal before the end of the project and that they are used effectively.

	Starting year				
Training	1979	1980	1981	1982	1983
MBA	2				
M.Sc.	2	4	2		
Long term non-acad	2	3	3		
Short term non-acad	4	4	4	4	4

The non-academic trainees will be trained in India and the US and will focus on seed technology, seed processing and equipment operation and maintenance. The academic training will focus on management, business administration, warehousing, economics and research as well as on various aspects of seed production and

processing. The advanced degree candidates may receive their training in India, the U.S. or some other suitable country.

The exact field of training will be agreed upon when the foreign technicians arrive to help implement this project.

The participant training program is expected to cost about $744,000 of which $679,000 will be the US contribution.

(3) Construction

Estimated costs of construction are based on average prices paid by HMG/N in Kathmandu valley augmented by a correction factor which depends on the remoteness of the area from the source of supply.

The factors for remoteness used in budgeting for this project:

Terai	- 100%
Middle hills	- 175%
Remote areas	- 200%

All buildings should have moisture barriers installed in the floor and foundations, should be rodent and bird proof, amenable to fumigation and insecticide application, be properly ventilated and should be insulated and dehumidified.

(a) Criteria for Locating Sites for Seed Houses and Warehouses

The criteria to be considered in deciding where the seed houses and warehouses are to be constructed will include but not be limited to the following:

(i) Amount of agricultural land.

(ii) Communication channels.

(iii) Needs of the farmers.

(iv) Variability and uniqueness of environment.

(v) Willingness of farmers to cooperate with the program. (donation of labor, land, etc. as well as to willingness to produce seed).

(vi) Desire for seed and fertilizer.

(vii) Distance from large plants.

(viii) Availability of labor for porterage.

(ix) Acceptability of seed from "outside source."

(b) Construction of Village or Mini Seed Houses (25)

These will be very small seed houses in the hills and remote inner terai having hand operated equipment although, if electricity is available, motors could be used for power. They will be located in small valleys having access to other cultivated areas in the remote regions so that a few farmers could be supplied with foundation seed by the AIC which they in turn would plant to produce seed for their neighbors. This would then be cleaned and treated in the village (or Panchayat, Sajha, or Ward) seed house as a member of a cooperative

or on a custom basis before being sold or bartered to other farmers.

Locations for some of these structures have been selected on a tentative basis but the final location for most will be selected as described above. Sites suggested to date are in the following districts:

Eastern Region	- Khotang, Illam, Dhankuta
Central Region	- Sindhuli, Kathmandu
Western Region	- Baglung, Palpa
Far Western Region	- Baitadi, Jumla, Rukum, Dang-Deokhuri

In some areas, local farmers or organizations are likely to supply buildings needed for the small seed plants so that more than 25 seed houses may be set up.

Tentative specifications are as follows:

Processing Storage	- 2 MT
Post Processing Storage	- 2 MT
Drying-processing Area	- 24' x 25'
Total size of building:	12' (to eaves) x 40' x 25' = 1,000 sq. ft.

The storage area will be enclosed so that it can be temperature and humidity controlled for seed preservation so that the work area can be ventilated and cleaned during the seed drying, processing and treating operations.

(c) Dryers and/or Dehumidified Areas (two each)

Two small drying units will be constructed, one each at Bhairawa and Rampur or as needed to be used in conjunction with the foundation seed plants at these locations. These structures will be about

14' (to eavos) x 25' x 30' = 750 sq. ft. and will be equipped for both bag & bin drying using the IRRI designed trash fired burners or solar heaters.

The dehumidified areas will be installed in existing structures in Bhairawa and Rampur.

(d) Warehouse Construction

Two different sizes of warehouses are visualized under this project. None of them are to be located in the terai proper although one or two might be placed in the inner terai. They are to be located so as to promote seed, fertilizer and other input preservation and distribution. They will be designed to have separate areas for storage of seeds, pesticides and fertilizers and will have provision for offices, and living accommodations for a limited staff. All should be rodent and bird proof, moisture proof and capable of being ventilated and fumigated. Two will have a limited amount of storage space dehumidified for long term seed storage.

Each of the larger units should be located on main trade arteries feeding the middle hills and the mountainous area. The small units would be located at the entrances of mountain valleys so that they could feed the seed and other inputs of farmers into three or four valleys from one location.

Larger Warehouses: (Up to four)

These warehouses should be located farther out (up) in the distribution system than the existing large units so as to feed inputs into the agricultural production system in the hill areas of Nepal. They would be located in major branches of the watersheds and would be served by the already existing warehouses and would service the small warehouses described below.

The suggested specifications for these warehouse complexes are as follows:

Number of warehouse complexes - 4

Number of bldg. per complex - 3

Size of each building - 14' high (to eaves) x 40' x 62' or 14' x 20' x 124' (2480 sq. ft. in each building)

Capacity:

No. 1 Seed	-	250 M.T.	2480 sq. ft.
No. 2 Fertilizer	-	600 M.T.	2480 sq. ft.
No. 3 Fertilizer	-	140 M.T.	580 sq. ft.
Pesticides	-	7 M.T.	300 sq. ft.
Implements	-	40	300 sq. ft.
Laboratory/store	-	1	150 sq. ft.
Office - 2 desks	-	1	150 sq. ft.
Quarters	-	3 sets	900 sq. ft.
Fumigation	-	1	100 sq. ft.

Small Warehouses: (Twenty five)

These warehouses would be very simple structures located so as to service farm groups.

The specifications for this warehouse type follows:

No. of storage complexes	- 25
No. of bldgs.	- 1 per complex
Size of Bldg.	- 14' high (to eaves) x 40' x 75' or 14' x 20' x 150' (3,000 sq. ft.)

Capacity:

Seed	- 50 M.T.	- 500 sq. ft.
Fertilizer	- 50 M.T.	- 700 sq. ft.
Pesticides	- 4 M.T.	- 150 sq. ft.
Implements	- 20	- 200 sq. ft.
Laboratory Storage	- 1	- 100 sq. ft.
Office	- 1	- 150 sq. ft.
Quarters	- 2	- 600 sq. ft.
Extension Room	- 1	- 350 sq. ft.
Fumigation Room	- 1	- 100 sq. ft.
Halls & Walls	- 1	- 150 sq. ft.

(e) Genetic Seed Stocks Storage:

In order to maintain a wide genetic diversity in cereal and vegetable varieties, provision must be made for preserving existing genetic stocks. Cold storage facilities can be used to increase the number of years that seed will remain viable and to decrease cost of a successful germ plasm bank.

This unit would be located at Khumaltar farm and would be operated as part of the Botany Division's program; specifications for this unit are as follows:

No. of structures	- 1
Insulation	- fully insulated
Size of Bldg.	- 14' (to eaves) x 22' x 15' (330 sq. ft.)

(f) Seed Laboratories 1 central and 3 regional

A successful seed program must be based on an effective, fast moving inspection system. It is essential that seed testing facilities be set up on a central and a regional basis. A small central laboratory has been set up at Khumaltar Farm which will be enlarged and some equipment will be added to existing equipment and worn-out units will be replaced in order to be better able to monitor the seed industry, to test results of the other laboratories, check imports and exports of seed and help other laboratories in case of emergencies.

It is proposed to set up a laboratory in conjunction with other scientific or administrative facilities in each of the three remaining regions to test seed produced in the region and to help farmers produce the quality of seed other farmers and farm organizations are willing to buy. The specifications for these seed laboratories are as follows:

Regional Laboratories

No. of laboratories	- 3
Size of each laboratory	- 35' x 50' = 1750 sq. ft.
Rooms to be set up for	- 3 offices - Size & Moisture testing lab - Germination laboratory - Sample preparation - Purity analysis lab - Storeroom

Central Laboratory

Size of addition - 30' x 50' = 1500 sq. ft.

Rooms to be set up for
- Receiving
- Storage
- Seed sample storage
- Walk-in germinator
- Laboratory

(g) Release of Funds for Construction

Releases of funds for construction under this agreement will be as agreed in the Implementation Letters.

The total construction program is expected to cost about $2,252,000 of which $1,418,000 would be furnished by the U.S.

(4) Commodities

Commodities will be used to promote seed production, improve seed quality and increase the use of agricultural inputs by setting up new facilities and improving existing installations.

In general, six types of commodities are needed: seed production equipment and supplies; seed and fertilizer handling equipment and supplies for protecting and monitoring inputs while in storage, a limited amount of seed analysis equipment; vehicles for AIC and the Botany Division, construction supplies such as plastic sheeting, reinforcing steel, roofing, cement, ventilators and fan's etc.; and expendable items, such as seed treating chemicals, rodenticides, insecticides, fumigants, plastic and jute bags, ties, fuel, etc. The lists of requirements should be prepared by the contractor with the help of HMG/N and A.I.D. and procurement will be handled by the contractor.

The pick up trucks and 4 wheel vehicles must be procured in the US but other commodities may be procured in the US or a Code 941 country. US funds cannot be used for purchase of pesticides.

The total cost of the commodities is expected to be about $1,098,000 of which $793,000 would be the US share.

(5) Social Science and Physiological Research

There are several questions that have not yet been answered regarding how this project can be managed, how it can best serve the farmers and how it will operate. To solve these questions, money should be set aside for research in the social sciences in order to learn more about how villages and individuals make decisions; how villagers organize themselves for tasks such as seed producing, management of warehouses, management and sales of surpluses, and other problems that are bound to arise as they develop their capability and their production increases. Information is needed on what types of co-operatives can be organized for economic production purposes and what basis should be used for organizing them.

Another area for research should lead to the development of an economical transportation system for seed. Can seed be moved as and when needed securely and safely?

Among other questions that need answering are the following:

a. What does it take to increase the confidence of farmers in organizations such as the AIC and their products?

b. How can the extension service be most effective in promoting the seed industry?

c. Can the ADB and the Agricultural Credit System be used to support the construction of warehouses and seedhouses?

d. What criteria should be used for selecting seed producers in the isolated areas?

e. What kind of training programs will be most effective in teaching farmers to produce quality seed?

f. How much of a price premium would farmers pay for good seed?

g. How large a premium is needed in order to encourage good farmers to produce seed?

h. Are there any cultural or traditional constraints to farmers accepting new varieties or new crops? If so, how can they be circumvented?

i. How can seed quality be maintained in storage and in transit?

j. How can seed packaging be improved for movement in Nepal?

The cost of the Social Science and physiological research will be $110,000 of which the U.S. share will be about $100,000.

(6) In-country Training

HMG/N recognizes that it needs many trained gazetted officers to handle a seed program such as this. It recognizes that some out of country training is required but it also recognizes that much of the training, if properly conducted and if participants are properly used, can be done just as effectively in Nepal as it can be done in India, the Philippines or the U.S.

Therefore, a number of training programs will be conducted in Nepal in cooperation with the Science Faculty and the Institute of Agricultural and Animal Science and the principal research stations.

Topics such as the following should be taught:

a. Management of seed processing plants
b. Management of warehouses and logistics of agricultural inputs.
c. Seed analysis
d. Maintaining seed and fertilizer quality
e. Commodity management and inventory control
f. Sales techniques
g. Agricultural extension techniques
h. Helping farmer seed producers
i. Estimation of seed requirements
j. Field and seed house inspection, etc.

Care should be taken in selecting training materials to make these in-country training programs as effective as possible.

The estimated cost will be $120,000 of which $100,000 will be the U.S. contribution.

B. Log Frame Summary

The summary of US and HMG/N project inputs is quoted from the Project Paper Log Frame as follows:

NARRATIVE SUMMARY	Implementation Target (Type and Quantity)
Inputs:	
1. U.S.G.	
A. Advisory Assistance - Long Term	A. Advisors - Long Term
1 - Seed production specialist 2 - Seed processing specialist	Seed Production & Management 60 PM Seed Processing, Business Ad., Storage and Logistics 24 PM
Short Term	Short Term
Seed Production Seed Processing Seed Storage Seed Protection	Consultants 20 PM
B. Participant Training	B. Participant Training Starts:
Advanced degree Non-academic long term Non-academic short term	

	FY 79	80	81	82	83
MBA	2	-	-	-	-
M.Sc.	2	4	2	-	-
Long term N/A	2	3	3	-	-
Short term N/A	4	4	4	4	4

NARRATIVE SUMMARY	
C. Commodities Seed processing equipment Air conditioning or dehumidification equipment structural components of seed houses and storage buildings which are not available in country.	C. Commodities 40 seed cleaners & treaters 3 air conditioner - dehumidifier sets for seed houses and genetic seed storage 2 driers for seed houses 2 dehumidified & air conditioned rooms for warehouses Equipment for Storage Bldgs. Laboratory equipment for seed analysis
D. Construction Seed houses Storage buildings Laboratories	D. Construction 4 large storage complexes 25 small storage building 25 mini (two rooms) seed houses 3 Seed laboratories - Regional 1 Seed laboratory-Central 1 Genetic Seed storage
E. Peace Corps Volunteers	E. P.C. Volunteers - 6 for 2 yrs. Each

2. HMG/N

($ 000 equivalent)

Incremental Staff	
Counterpart personnel	64
Equipment/materials supervision/maintenance	38
Construction supervision/maintenance	316
Construction materials and contingency	451
Equipment and materials	267

	($ 000 equivalent)
Contractor support	100
Participant trainees' costs	65
Land	67
Training in-country & research	30
Total estimated	1,398

C. Financial Tables

This section provides three relevant financial tables drawn from the Project Paper. They cover: one, project costing by outputs and and inputs; two, a summary of cost estimates and a financial plan by project activity line items; and three, a projection of expenditures by fiscal year. The respective tables follows:

TABLE NO. 1

COSTING OF PROJECT OUTPUTS/INPUTS
(In $000 or equivalent)

Project Inputs	Project Outputs				TOTAL
	# 1	# 2	# 3	# 4	
A.I.D. Appropriated					
Contract Services	140	530	260	11	941
Training Participant	118	228	160	173	679
Commodities	-	428	230	135	793
Construction	-	273	1108	37	1418
Social Science Research	40	20	20	20	100
In-country Training	20	30	30	20	100
Other U.S.					
Peace Corps	20	20	20	20	80
Host Country	50	400	840	108	1398
Other Donors					

Outputs Key:

#1. Trained farmer groups capable of and organized to produce and distribute seed.

#2. Seed processing system functioning in terai and hills.

#3. Input distribution system established.

#4. Seed testing system in operation.

TABLE NO. 2

SUMMARY COST ESTIMATE AND FINANCIAL PLAN
(US $000)

Source 1/	A.I.D.		Host Country		Other(s)		Total
	FX	IC	FX	IC	FX	IC	
Use							
1. Contract Services	941			164			1105
2. Commodities	793		30	275			1098
3. Participant Training	679			65			744
4. Social Research 2/	100			10			110
5. Seed Assistants (PCV)					80		80
6. Construction	1418		40	794			2252
7. In-country Training	100			20			120
Inflation Factor 3/							
Contingency 1/							
	4031		70	1328	80		5509

1/ Contingency included in line - item estimates.

2/ Local organizations to be used if possible to conduct research.

3/ Included in line items at rate of 10% per year.
[Footnotes in the original.]

TABLE NO. 3

PROJECTION OF EXPENDITURE BY FISCAL YEAR
(US $000)

Fiscal Year	A.I.D.	Host Country	Other(s)	Total
1978	25	-	-	25
1979	963	346	20	1,329
1980	1,689	353	20	2,062
1981	1,006	353	20	1,379
1982	348	346	20	714
Total	4,031	1,398	80	5,509

III. Summary

The Project Paper Log Frame provides a concise summary statement of expected outputs and their magnitude and is quoted here as follows:

Project Title & Number: Seed Production & Input Storage, 367-0118

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS
Outputs:	Magnitude of Outputs:
1. Trained farmer groups capable of producing seed.	A. Seed production and distribution system established including:
2. Seed processing plants set up in Terai and Hills.	1. 1 large seed house (4 ton/hr.) (UNDP)
3. Seed cleaning and treating machines moved to remote hills.	2. 5 medium sized seed houses (2 to 3 tons per hour). (GA)
4. Model seed contracts developed.	3. Upto 40 seed cleaners in mini sized installations (.25 ton per hour) mostly hand operated.
5. Trained production and processing staff.	B. Storage - Capacity: Seed / Fertilizer
6. Storage buildings - some humidity controlled.	1. 4 medium warehouses 1,000 / 3,400
7. Distribution system and staff.	2. 25 small warehouses 1,250 / 2,500
8. Seed laboratories established to assist seed producers and warehouse operators manage their operations and to control quality.	Total 2,250 / 5,900
9. Seed packaging system developed.	C. Infrastructure and staff in place.
10. Seed Research conducted to improve keeping quality.	D. Seed production increasing 15% per year during life of project.
11. Workable and fair system developed for paying seed premiums.	E. One central and four Regional seed testing laboratories in operation.
12. Seed preservation unit for genetic stock preservation.	F. Contract format developed.
	G. Improved packaging and storage system developed.
	H. Seed supplied through local Sajha or other outlets.
	I. Cold storage vault in operation.

IV. Evaluations

A. Timing:

Evaluations will be held annually, usually in February, as mutually agreed by the contractor, HMG/N and A.I.D.

B. Content:

1. Construction: The construction program will be reviewed and progress against the entire scope of the project will be measured. Proposed sites will be discussed, quality of construction, appropriateness of moisture proofing and bird and rodent proofing and security will be checked.

2. Commodities: Commodity lists and procurement practices will be reviewed for appropriateness and to insure that U.S. procurement regulations are being observed, that labor intensive equipment is being secured wherever possible and that procurement is being done on a timely and efficient basis.

3. Participant Training: The two MBA candidates and two of the M.Sc. candidates should be sent out of the country for training during 1979. All other M.Sc. candidates and all of the long term non-degree participants should be sent for training during 1979, 1980 or 1981 to insure that the trainees return well before the completion of the project. In fact, it would be desirable for all long term trainees to be back on the job at least one year before

the completion of the project in late 1983. The short term trainees can be sent in any year but, in 1983, they should return early to be sure to be in-country prior to the first of September of that year.

In addition to timing, suitability of training, capability of training institution, job to be done on the trainee's return, appropriateness of their educational background, availability of in-country training and job performance should also be considered in evaluating the participant program.

4. Advisors and Consultants: The success of the contractor in supplying long term advisors and short term consultants should be evaluated along with the ability of the MFAI to absorb the services offered. The ability of HMG/N to supply counterparts to the consultants should also be looked at in detail, both in terms of numbers of counterparts and in terms of their ability to absorb the on-the-job opportunities offered to them. Fully half of the short term consultant's time should be used for conducting training programs for Nepali employees of the AIC, Department of Agriculture, and other organizations engaged in this project.

5. Social Science Research: Funds are available to conduct research on the social, economic and anthropological aspects of the project. This research should be aimed at finding the constraints to the usage of improved seed and what has to be done

to persuade farmers to use the new varieties and the seeds produced under official aid supported programs. Included in this research should be such topics as who makes decisions regarding the varieties and quality of seeds to be used in the village or the farm or by the family? What are the main determinants? How much effect does price have on seed purchases? How does the farmer judge quality? How can farmer - seed producers be organized to manage a seed business? How much of a margin do they have to have in order to produce seed successfully and many others.

6. Seed Analysis and Standards Enforcement: One of the current hindrances to the production and distribution of good seed is the inability of the seed section of the Botany Division to travel about the country to conduct field and seed house inspections and to deliver analysis of seed samples expeditiously. The section should be able to enforce the proposed labeling law and to help farmer-seed producers with their production problems. Operation of equipment, drying, cleaning, packaging, maintenance of germination, control of seed house pests and other aspects of seed processing and production are important. Three laboratories are to be constructed under this project and a central laboratory is to be partially re-equipped and enlarged.

7. Seed Production: It is expected that two or three private seed production groups will be functioning in the terai and many

small cooperatives or farmer groups will be producing seed in the hills. Representative samples of these producers should be checked along with their produce to ascertain the quality of their merchandise, the attitude their customers have toward them and their product and their ability to operate a seed business.

The amount of seed available to the farmers of Nepal, its price, its quality, the varieties offered for sale as well as demand in the various regions should all be considered when evaluating the efficiency of the seed producers in responding to the demands of the farmers in the area. Finally, it may be necessary to evaluate the government's ability to subsidize the seed industry in order to keep prices low enough that farmers will buy the seed offered for sale.

8. In-country Training: Balance between training in analysis, enforcement, extension, production and other aspects of seed production should be checked for adequacy, reasonableness and value to the industry and to the farmers of Nepal.

9. Warehouse Operation: Regardless of the quality of the structures in which seed is stored, the management of the system can negate any possible benefit stemming from the superior buildings. Failure to stack properly, to ventilate the building when required, to maintain adequate records, to protect from

moisture, insects, moulds, birds and rodents, and other derelictions of duty can cause seed and fertilizer to deteriorate very rapidly. Evidences of poor management include the following easily read signs: (a) off odours, (b) dampness, (c) mixtures, (d) material on floor, (e) broken windows and ventilators, (f) broken containers, (g) damaged equipment, (h) old stock on hand, etc.

10. Maintenance: One of the surest indications of the quality of the operation of a unit is the maintenance it receives. The equipment, the buildings, the fertilizer, other supplies and even seed must all be taken care of - or maintained. Inadequate lubrication, moisture, or loose connections can all cause losses and depreciation in values. Torn bags, loose bolts and belts, lost labels and many other signs will indicate poor maintenance and poor control of the whole input supply system.

11. Agricultural Credit: Is enough credit on hand to insure smooth operation of the seed industry?

C. Special Considerations:

In addition to the routine evaluations enumerated above, some special attention will be paid to various aspects of the seed business that do not respond easily to annual review. Among these are the

following:

1. What special actions are necessary to encourage farmers to take over the seed industry? How much of a subsidy for private industry is required?

2. How fast can the industry be shifted to the private sector?

3. What activities should be carried on to lead to a certified seed system in about ten years?

4. How do farmers view "improved seed" after four years of the project? Do they have confidence in their seed supply?

5. Is seed actually moving from the large seed houses to other parts of the terai and lower hills?

At the conclusion of the project, all aspects of the project's activities will be evaluated and a report prepared on why it did or did not accomplish its objectives.

It is not anticipated that outside help would be required to conduct the evaluation except for representatives of the contractor and the mission's AID/W backstop officers.

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